



Contribution ID: 193

Type: Poster

Barium capture and identification through bi-color molecular sensors and Two-Photon Absorption microscopy

The next generation of neutrinoless double beta decay searches aims to reach sensitivities in the half-life of the process up to 10^{28} years. This will require tonne scale detectors with almost no background in their region of interest, which represents a large improvement with respect to current technologies. One of the most interesting solutions is the possibility of tagging the daughter ion produced in the decay. The NEXT collaboration is currently involved in a strong R&D program based on fluorescent molecules that show promising results towards a single ion identification in pressure gas. I will show the latest results based on the spectral shift of the emission fluorescence of this molecule after Ba^{++} capture in dry media. The emission light is then detected by Two Photon Absorption microscopy, which allows autofocus. Additionally, I will detail how this technique can be integrated into a xenon gas detector.

Mini-abstract

A selective bicolor molecular indicator is being developed as a Barium Tagging device for a GXe TPC.

Experiment/Collaboration

NEXT

Primary author: HERRERO GÓMEZ, Pablo (Donostia International Physics Center)

Co-authors: Mr APARICIO, Borja (UPV/EHU); Prof. ROGERO-BLANCO, Celia (MPC/CSIC); Prof. COSSIO, Fernando (UPV/EHU); Mr MONRABAL, Francesc (IFIC); Dr RIVILLA DE LA CRUZ, Iván (DIPC); Prof. GOMEZ--CADENAS, Juan José (DIPC); Prof. FREIXA, Zoraida (UPV/EHU)

Presenter: HERRERO GÓMEZ, Pablo (Donostia International Physics Center)

Session Classification: Poster Session 2